



up grade

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■ LASCO NEWS

Goodbye scale

Forging in a low-oxygen environment offers a number of economic advantages. The „ERProFit“ research project is investigating whether and how the process can also be used in older systems.

Page 3

■ LASCO KNOW-HOW

Step-by-step approach

Incremental forming is still not widely used in many areas of forming technology, but offers enormous potential for various industrial applications. LASCO solutions are already proving themselves in practice.

Pages 4-5

■ LASCO PRACTICE

Consciously planned crossing of borders

The i-FORGE project by the Italian company Pietro Rosa TBM aims to overcome the previous limits of precision forging and set new standards.

Page 8



Editorial



Changing the course before it's too late!

According to the Federal Motor Transport Authority, 1.41 million electric cars were registered in Germany at the beginning of 2024. In order to achieve the political target of 15 million electric cars on German roads by 2030, there would have to be a historic boom in demand for electric cars in the remaining five years. However, we are currently seeing the opposite. And even then, we would only have achieved half of the climate targets in the traffic sector.

On the road to decarbonization, the political prioritization of electromobility is proving to be ineffective. A rethink is therefore needed: we need to make tried-and-tested vehicles climate-neutral instead of banning them; we need to make combustion engines fit for the future instead of banning them from the market. According to experts, all technologies are available for this. Synthetic fuels, hybrid drives and hydrogen must play an important role in the mobility of the future. These technologies must receive massive political support in order to make them available on an industrial scale at low cost.

It is also necessary to at least give equal weight to the fuel debate with regard to sectors that are not associated with mobility in the narrow sense: agriculture and, above all, the construction industry, which are dependent on heavy, powerful and long-term machines, can at best only be partially „electrified“ in the foreseeable future.

The combustion engine will remain relevant far beyond 2030. Politicians should take this into account and set the course in the right direction by being open to technology. With regard to the ailing German economy and the automotive supply industry, the sooner ideological blockades are overcome, the less damage will be done to the entire industry.

Yours, Lothar Bauersachs
Chairman of the
LASCO Management Board

LASCO TRENDS + MARKETS



Trade fairs and specialist congresses are of outstanding importance for promoting innovation and building partnerships in the metalworking industry in Asia too.

Encouraging successes at key events in the Far East A SPIRIT OF OPTIMISM

The forming industry in India and Vietnam, as well as in China, is putting the adverse effects of the Covid pandemic behind it, returning to normality and tackling future tasks with determination. This positive impression was conveyed by key events in India and Vietnam.

A spirit of optimism is particularly noticeable in India. As at **ForgeTech India** (November 3-5, 2023, Pune), the number of visitors at **IMTEX FORMING** (January 23-25, 2024, Bangalore) was also high. Prime Minister Narendra Modi's ambitious economic program is increasingly bearing fruit, as evidenced by a large number of investment

inquiries. Solutions in the field of aluminum processing and lightweight construction for the automotive industry are particularly in demand. At the same time, however, the inquiries cover the entire product spectrum of the forging industry.

Metalex Vietnam, one of the leading local events for the metalworking industry, was held in October 2023 at the Saigon Exhibition and Convention Center in Ho Chi Minh City. The show attracted a wide range of participants from around the world, including business leaders, professionals and students, who came to learn about the latest developments and technologies in metalworking. Technical presentations, workshops and live demonstrations provided a broad platform for knowledge exchange.

LASCO was represented for the second time at the joint stand of the „Bayern International“ organization. By presenting the latest products and technologies, LASCO made valuable business contacts and expanded existing relationships. The successful discussions led, among other things, to the preparation of a LASCO representative office in Vietnam in order to serve the local market even better.

MILAN IS CALLING

Europe's only exhibition and conference for forging, EUROFORGE conFAIR, promises to be even bigger and more exciting than ever at its third edition on October 22 and 23, 2024 in Milan (Italy). As a central meeting point for mass converters, suppliers and scientists, it will offer a unique platform for exchanging knowledge, presenting innovative technologies and networking. The technical presentation by LASCO Sales Manager Dipl.-Ing. (FH) Jochen Günnel will focus on the advantages of new drive technologies, resource-efficient pre-forming processes for demanding materials and the extended application possibilities of modern LASCO stretching systems.

Project RePASE

COMPLETION

Results from the German joint project Re-PASE („Reflexive Process Development and Adaptation in Advanced Systems Engineering“), which was launched in March 2021, are eagerly awaited. The aim of the project is to develop and test tools and strategies for the introduction of model-based system development. To this end, three universities, four application partners from industry and four IT experts, so-called „enablers“, are cooperating under the supervision of the „Projekträger Karlsruhe“ (‘‘Lead Partner Karlsruhe’’) (PTKA) institute. LASCO is contributing its expertise as a user. The project, which is funded by the Federal Ministry of Education and Research (BMBF) with a funding volume of more than 5 million euros, will be completed in fall 2024. The software tools developed, which aim to optimize design processes in mechanical engineering and accelerate solution finding, will then be ready for use. They are already being tested at LASCO.



COMPLEX PARTS? NO PROBLEM!

Customers place their trust in LASCO particularly because of the high quality, professional competence and reliable adherence to delivery dates, both in the manufacture of machine tools and in contract manufacturing. This trust is an incentive for us to constantly increase our performance capabilities and to respond even more flexibly to customer requirements. With the addition of a **BT 3200 bed-type milling machine** from **MTE** (Montabaur) to our machine park, LASCO has expanded its capabilities and will also provide its contract manufacturing customers with additional capacities in the area of **5-axis machining** in the future. This machine impresses with its dynamic and high-precision operation and, thanks to the integrated rotary table, enables high-precision machining even of particularly complex workpieces. Thanks to the Heidenhain TNC 640 CNC control, which was specially developed for **single part and small series production**, LASCO will continue to guarantee maximum precision and flexibility for demanding machining jobs in the future.

Low-oxygen forging

GOODBYE SCALE

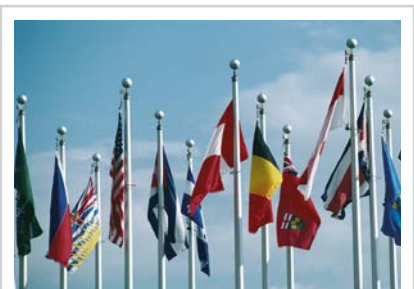
Forging in a low-oxygen environment significantly reduces unwanted scale formation. This not only increases material efficiency and cost-effectiveness in hot forging, but also reduces its CO₂ footprint.

As part of the research project „Energy- and resource-efficient production - low-oxygen forging - by retrofitting existing forging systems“, or „ERProFit“ for short, the Institute of Forming Technology and Machines (IFUM), in cooperation with LASCO and Gebr. Steller KG (Halver), successfully implemented a retrofit concept for converting systems for a low-oxygen process atmosphere. In order to remove oxygen from the forging process, the tool is encapsulated and the air inside is replaced by introducing nitrogen. In scientific tests with the system co-developed by LASCO, a scale reduction of 75 percent was achieved on a LASCO SPR 500 screw press.



The tool enclosure for low-oxygen forging during tests at IFUM (Hannover).

The solution developed is seen by Gebr. Steller KG as a substantial contribution to progress in the nationwide NoCarb-Forging initiative. With a production volume of 1.5 million tons that is hot formed in Germany, this system could result in considerable material savings of up to 33,000 tons in addition to reducing CO₂.



TRADE FAIRS + DATES

MSV
Brno (Brno), Czech Republic
October 8 - 11, 2024

EUROFORGE conFAIR
Milan, Italy
October 22 - 23, 2024

Warsaw Industry Week
Warsaw, Poland
October 22 - 25, 2024

19. Erlanger Workshop
Warmblechumformung
Fürth, Germany
November 19, 2024



An overview of current applications and developments

INCREMENTAL FORMING

Fully automatic LASCO stretching system from the AR series.

Incremental forming still has great potential for many areas of forming technology. This article highlights specific applications and progresses, in particular through developments by LASCO Umformtechnik GmbH.

Linear incremental forming

An outstanding example of incremental forming is linear forming, which is used in the production of gear racks, among other things. Racks are cold-formed on LASCO linear incremental forming presses using the net-shape process, which enables precise and efficient production. Despite these advantages, this method is still rarely used at present.

Orbital incremental forming

LASCO has developed special presses for this purpose, which are currently also being used in research and development. Thanks to gentle forming processes and small forming stages, this technology enables the production of voluminous formed parts with relatively low pressing forces, which contributes in particular to achieving a homogeneous grain flow in the material.

Stretching as an important process in forming technology

Stretching is an important application of incremental forming, especially for the production of medium to heavy forgings (50 - 3,000 kg). This process offers high flexibility and material utilization with low tool costs. High repeatability and efficiency are achieved by automating the stretching process.

Modern stretching systems, such as the AR-D series developed by LASCO, use specialized software to determine and apply optimum process parameters. This software decides almost autonomously on the number of stitches, pressing forces, speeds and other relevant parameters.

Renaissance of stretching lines

In recent years, LASCO has seen an increasing demand for stretching lines with special requirement profiles. The fully

automatic systems of the AR type, which were already introduced in the 1980s, are experiencing a renaissance. These systems are characterized by their versatility and the integration of specially developed manipulators.

System concept of the AR series

The heart of the AR series is the hydraulic multi-purpose press type VPE. Thanks to the central loading through stretching saddle displacement, the use of cost-effective monoblock frames is possible. The hydraulic LASCO drive enables fast sequences of up to 120 strokes per minute and high pressing speeds of up to 180 mm/s. These requirements





The suspended manipulator is just one of several options.



The press and manipulators are controlled via an F-CPU.

are met by the energy-efficient and maintenance-friendly hydraulic direct drives.

The importance of the manipulators

Manipulators play a central role in the system concept. Press and manipulator sequences are coordinated via a fast and fail-

safe F-CPU. Depending on the dimensions of the blanks, suspended or rail-mounted manipulators are used.

Significance for the industry

Incremental forming is expected to gain in importance as CO₂ emissions and energy savings become ever more stringent. EU regulations and global competitive pressure require cheaper and more sustainable manufacturing processes, which can be achieved using these forming technologies.

Conclusion

Incremental forming offers numerous advantages and has the potential to become increasingly established due to the growing demands for sustainability and efficiency. Continuous further development and adaptation of system concepts, as promoted by LASCO, are crucial for the future success of this forming technology.

LASCO HYDRAULIC SERVO DIRECT DRIVE®

High stroke rates of up to 120 per minute and simultaneously high pressing speeds of up to 200 mm/s at full pressing force are the hallmarks of the „Hydraulic Servo Direct Drive®“ developed by LASCO.

As it is known that the drive power correlates directly with the process parameters of pressing force, pressing speed and stroke rate, the electrical connected load is correspondingly high.

With conventional press drives, a cooling capacity of up to 60 % of the connected load must be assumed. Until now, this has had a considerable negative effect on the energy balance of hydraulic presses.

With the more efficient drive concept of the LASCO Hydraulic Servo Direct Drive®, recuperation drastically reduces the current peaks during start-up and the required cooling capacity is also significantly reduced. On average, only approx. 10 % of the connected load is required as cooling power. This makes the LASCO drive concept particularly efficient, future-proof and indispensable for modern hydraulic presses.



The hydraulic direct drive of the VPE multi-purpose press enables up to 120 strokes per minute.

Congratulations to long-serving employees

RECOGNITION OF SUCCESSFUL CONTRIBUTIONS

LASCO Umformtechnik GmbH honors the performance and loyalty of 11 employees who have worked for the company for 25 years and actively contributed to the success of the machine tool manufacturer.

At a ceremony, Friedrich Herdan, Chairman of the Management Board of LASCO Langenstein & Schemann, Holding, and Lothar Bauersachs, Chairman of the Management Board of LASCO Umformtechnik GmbH, thanked Jens Hille, Adrian Wien, Klaus Spielmann, David Hall, Irene Richter, Kai Hochberger, Markus Friedel, Ronny Götz, Christian Cansikan, Jerome Fellner and Ramona Steiner (all 25 years) for their hard work and loyalty to the company. In the presence of Works Council Chairman Peter Wache, certificates, loyalty bonuses, the Bavarian Employers' Board of Trustees medal and IHK certificates of honor were presented as a sign of recognition.

Jens Hille graduated in 1987 with a degree in general mechanical engineering, specializing in transmission technology. In 1991, he completed a postgraduate course in fluid technology and graduated with a Dipl.-Ing. (FH) degree in 1993. He has been contributing his first-class professional qualifications to LASCO since 1998 as a mechanical engineer in the automation design department and is happy to take on technically demanding special tasks.

Adrian Wien completed his training as a mechanical engineer in 1989 and began his career at LASCO in 1998 after graduating with a degree in mechanical engineering in the design department for forming technology/sand-lime brick technology. He contributes his extensive knowledge of forming processes/tool technology in numerous further training courses, including in the field of simulation technology for forming processes.

Klaus Spielmann completed his training as a car mechanic. After further training as a REFA specialist and technician for industrial science, he joined LASCO in 1998 and has been planning, organizing and coordinating production processes with great expertise ever since.

David Hall started at LASCO as a logistics specialist. After various further training courses, he became group leader of internal logistics and is responsible for transporting components weighing up to 160 tons. From 2014 to 2018, Mr. Hall was Chairman of the Works Council and Head of the Works and Economic Committee.

After several years of professional experience as a foreign language correspondent, Irene Richter rejoined the company in 1998 as secretary to the head of design and moved to the sales secretariat the following year. From 2000, she took over the position of deputy management secretary and moved to the management secretariat in 2023.

Markus Friedel trained as a central heating and ventilation engineer and joined LASCO as an employee in the material preparation department after various further training courses. He is responsible for the precise cutting of a wide variety of metals for subsequent production.

Ronny Götz trained as a model carpenter and applies his high level of skill in this profession in the in-house model carpentry workshop. He has also trained as a specialist in packaging solutions. Among other things, this involves producing transport containers for sea and air freight in accordance with standards and international specifications. He has been involved in the works council since 2018 and is a member of the economic committee.

Christian Cansikan began his training at LASCO in 1998 as a cutting machine operator. After successfully completing his training, he has been working on large lathes since 2002 and is now a specialist in the manufacture of complex turned parts.

Jerome Fellner has been working as a machine fitter in the assembly sector since 1998. His great flexibility and expertise are highly valued by customers for new installations and repairs.

Ramona Steiner started as a cleaning specialist at LASCO 25 years ago and has been ensuring a clean, well-maintained environment for customers and employees with her friendly manner ever since.



LASCO anniversary celebrations (from right to left): Lothar Bauersachs (Chairman of the Management Board), Friedrich Herdan (Chairman of the Management Board of LASCO Holding), Irene Richter, Peter Wache (Chairman of the Works Council), Ramona Steiner, Jerome Fellner, Ronny Götz, Christian Cansikan, Klaus Spielmann, David Hall, Kai Hochberger, Markus Friedel, Jens Hille.

A brief look

Vocational training at LASCO - the path to a successful future: On September 2, 2024, 18 young school leavers started their vocational training at LASCO. The new apprentices to the LASCO training also include six participants from the „Training 1+3“ integration project for refugees and two participants from the „Job-Turbo“ project initiated by the Federal Ministry of Labor and Social Affairs. LASCO is currently training a total of 52 apprentices. Dual education is a central component of LASCO’s corporate philosophy. Theory and practice are ideally harmonized.

LASCO has always seen it as an important task to train its own highly qualified specialists for the medium and long term and to take social responsibility for offering young people a solid basis for their future. With a training rate of 13%, which is well above the average for the machine tool industry, LASCO believes it is ideally equipped to counteract the shortage of skilled workers.



Solar modules on the company buildings: capacity increased by 81 percent.

Megawatt threshold exceeded with solar power
„GREEN“ POWER PLANT

LASCO Umformtechnik has expanded its capacity for generating electricity from solar energy in Coburg-Cortendorf for the third time, exceeding the megawatt threshold for the first time.

„We are thus consistently focusing on renewable energies and making an important contribution to reducing CO2 emissions, emphasizes Lothar Bauersachs, Chairman of the LASCO Management Board. LASCO has been using solar modules on the roofs of its production and assembly halls to generate electricity since 2008. While the first system had an output of 34.4 kWp, capacity was expanded by 222.2 kWp in 2012 and 328 kWp in 2019. The most recent expansion in 2024 increased the number of installed modules to 3,692 and boosted output by 473.8 kWp to a total of 1,058 kWp.

In addition, an electricity storage system with 550 kW inverter output and a storage capacity of just under one megawatt hour (966 kWh) was installed. This enables LASCO to use the majority of the electricity it generates itself and thus significantly reduce its electricity procurement costs. Since the installation of the first system, LASCO has generated around 4.4 gigawatt hours of solar power up to the most recent expansion, which corresponds to a saving of more than 2,211 tons of carbon dioxide that would have been produced by conventional power generation.

However, LASCO’s contribution to decarbonization goes far beyond solar power ge-

neration and has been particularly focused on its core business for years. Bauersachs emphasizes that for years, LASCO machines and systems have been about optimizing the amount of energy required to provide the forming power needed for each



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LASCO uses the majority of the electricity generated by the 3,692 installed solar modules itself.

application. The substantial progress that the company has already achieved through the development of technical solutions such as servo direct drives and recuperative drive systems (energy recovery when braking moving masses) and by minimizing energy consumers in the systems (e.g. hydraulic valves) impressively strengthens the company’s international competitiveness.



Thomas Götz, Managing Director Commercial Administration (4th from left), welcomed the new trainees

Diversity Management: Among the 52 trainees are five men who were recruited directly in Morocco to become skilled workers at LASCO. As an internationally operating company, LASCO relies on „diversity management“, among other things, to secure its own medium and long-term need for skilled workers, and has been consistently successful with this approach.

The five young men want to become machining and industrial mechanics or electronics technicians. They are between 21 and 28 years old and are taking part in the „1 + 3“ combination model of the Coburg Chamber of Industry and Commerce, which includes intensive German language training. This program, which has been successful for many years, was initiated by Friedrich Herdan, Chairman of the Management Board of LASCO-Holding Langenstein & Scheumann GmbH and Honorary President of the Coburg Chamber of Industry and Commerce.

Interview



Pierpaolo Miotti
Head of Precision Forging
Pietro Rosa TBM,
Maniago (PN), Italy

Better alternative

up grade: Mr. Miotti, what insights have you gained from your first year of operating experience with the SPR 1000 So from LASCO?

Pierpaolo Miotti: i-FORGE is the project in which this screw press is involved in order to develop Pietro Rosa's precision forging technology beyond the limits of the current state of the industry. I am now certain that the goals have not been set too high, but will be achieved.

up grade: Did you have any doubts?

Miotti: No, not really. However, it is always a risk to question the tried and tested and try something new. It is a relief when stages of a larger journey have been successfully completed because systems reliably meet the requirements. With regard to the LASCO spindle, however, we expected nothing less.

up grade: Why?

Miotti: We have been working in our old plant for almost 15 years with the LASCO GH 4000 closed-die forging hammer and, since 2011, with an AR-D 320/200 stretching system and have had excellent experience with these LASCO machines.

up grade: Was LASCO therefore pre-determined as the supplier of the new unit?

Miotti: No. LASCO was also in competition systemically, because at the beginning it was about alternative solution concepts - also with regard to the central forming machine. LASCO's screw press concept convinced us the most. It was helpful that we were able to convince ourselves of the practicality of the LASCO solution at another manufacturer of turbine blades.



Pietro Rosa TBM

BORDER CROSSING

The Italian turbine component specialist Pietro Rosa TBM is currently expanding the previous limits of precision forging of demanding materials. As part of the i-FORGE project, the LASCO Screw Press SPR 1000 So plays a central role.

Since May 2023, this high-performance unit has been successfully tested in one of the three factories in Maniago for the production of turbine components. The aim of the i-FORGE project is to develop an innovative process for the automated production of aircraft turbine blades. This is to be realized through precision hot forging, finishing and testing in robot cells for high quantities, with a focus on particularly intelligent and adaptive process control.

The project, which is funded by the Italian government, is headed by Pierpaolo Miotti (Head of Business Unit Operations - Precision Forging), Simone Mitri (Value Stream Manager) and Andrea Maurizio (Chief of Technology). It not only aims to further increase productivity, energy and resource efficiency in forming processes, but also meets the aviation industry's stringent requirements for increasing engine performance and reducing fuel consumption. This leads to highly complex components made from difficult-to-process materials that have to be produced under strict quality specifications and with minimal manufacturing tolerances - a challenge for forging technology at the highest level.

The LASCO SPR 1000 So screw press is ideal for such demanding applications.

The special drive train offers a number of advantages, including precise control, exact energy metering, fast response times, high energy efficiency and flexibility.

The SPR 1000 was selected and specially adapted to meet Pietro Rosa's performance requirements. The unit offers a continuous permissible press force of 16,000 kN and smoothes out current peaks by using an energy storage system. The press is ideal for the manufacture of demanding products such as components for gas and steam turbines in fully automated production lines. This is ensured by precise control of the forming process and the possibility of high cycle frequencies.

Pietro Rosa TBM, a leading manufacturer of key components for the aerospace industry, has been known for its innovative strength, first-class products and outstanding customer service since 1887. With a clear focus on quality and innovation, the family-owned company with almost 500 employees has developed into a leading supplier in the industry. Global activities are coordinated from the headquarters in Maniago and customers are supported worldwide.



Pietro Rosa TBM is highly regarded internationally for its expertise in the manufacture of high-precision components for the aerospace and power generation industries.